BOX FOR A GLASS CONTAINER

Field of the Invention

The invention relates to light, food, perfume, pharmaceutical and other industries which use packages (boxes) for storing glass containers, in particular bottles with alcoholic drinks, bottles for perfumes and drugs, etc.

State of the Art

Known in the art is a box for a glass container, comprising a body made of two parts, which are connected to each other along the two lateral walls by a pivot ensuring opening of the body by turning the body parts in the horizontal plane (CH 595078, A 47 F 7/03, 18.06.1975). Inside the box a many-sided means made of cardboard is arranged, the means having a base for installing the said glass container. In the initial position, when the body parts are closed, the many-sided device is in its folded condition. When opening the body parts, the many-sided means is opened due to elasticity of cardboard. At this time the base moves in the horizontal plane, thus providing access to the glass container. The moving of the base is also contributed by the interaction between the pivotally connected lateral walls of the body parts and the central side of the many-sided means.

After opening the box many times, the cardboard wears out along the creases forming the sides, which results in lowering the elastic properties of the multi-sided means and, consequently, in reducing the length to which the base moves.

Also known is a box for articles, in particular for watches, comprising a body composed of two parts pivotally connected with the possibility of turning around the axis of the pivot (FR 1481090, A 45 C, 20.05.1967). Inside the box a watch is arranged, the body of which is kinematically connected with one part of the box body and pivotally with the other part of the box body. When opening the body parts of the box, the watch are moved out of the box due to the kinematic connection between the watch body and one part of the box body. The kinematic connection is made in the form of a curvilinear pivot connected with the watch body and passed between two pins fixed on one of the box body. Depending on the form of bend of the curvilinear pivot, the watch may move out of the box along various trajectories. But the known device has a complex design, and the watch body should be permanently connected to the box, that practically precludes the possibility of using the box for storing glass containers.

The closest as to the technical essence and the achieved result to this invention is a box for a glass container, comprising a body made of two parts, the lower part of which is intended for interacting

with the supporting surface, and the base for arrangement of, at least, one glass container (EP 0021900, A 45 D 34/00, 30.05.1980). In the known box, under the base, plates with slots and pins are installed, each of them being connected with one part of the body. The pins of one plate move, when the body parts are opened, in the slots of another plate, providing a large opening angle of the body parts. At this, the glass container does not change is spatial position, since the vertical axis of the pivot crosses the base and the plates with slots and pins.

Description of the Invention

The objective of this invention is to expand the technical possibilities of a box for a glass container at the expense of improving comfort in operating, better visual perception and self-descriptiveness.

After achieving the said objective it is possible to obtain a technical result consisting in ensuring a partial opening of the box and simultaneous raising, in the vertical direction, the base with a glass contained arranged on it, which improves the visual perception of the said glass container.

The said technical result may be achieved due to the fact that in a box for a glass container, comprising the body consisting of two parts, the lower part of which is intended for interacting with the supporting surface, and the base for arrangement of, at least, one glass container, each part of the body is pivotally connected to the base with the possibility of raising the base, when the body parts are opened in the opposite directions, each pivot is located, away from the external border of the corresponding part of the body, at a distance which is selected according to a condition excluding the return of the body parts to the initial position by the weight of the bottom and the weight of the glass container at a preset opening angle of the body parts, wherein the preset opening angle of the body parts is selected on the condition that the center of mass of each body part passes through the corresponding vertical plane going through points of contact between the body and the supporting surface when the body parts are opened, and the body parts are provided with a limiter of the opening angle of the body parts.

The distinctive feature of this invention is that each part of the body is pivotally connected to the base with the possibility of raising the base when the body parts are opened in the opposite directions. Each pivot is located, away from the external border of the corresponding part of the body, at a distance which is selected according to the condition excluding the return of the body parts to the initial position by the weight of the bottom and the weight of the glass container at a preset opening angle of the body parts. The preset opening angle is selected on the condition that the center of mass of each body part passes through the corresponding vertical plane going through points of contact between the body and the supporting surface when the body parts are opened. In the opposite case the body parts will return to their initial position.

Thus, the said features are essential and interrelated by a cause-and-effect relation, with the formation of a totality of the essential features sufficient for achieving a technical result.

Furthermore, each pivot may be arranged, away from the external border of the corresponding part of the body, at an equal distance, and the limiter of the angle of opening the body parts is made in the form of a flexible link.

It is also expedient that at least one part of the body should be provided with a means for arranging an additional glass container, which will increase the weight of the body part.

The said advantages as well as the peculiar features of this invention will be explained by its embodiments with references to the appended drawings.

Brief Description of the Drawings

FIG. 1 shows the general view of the box in the initial position, FIG. 2 shows the box in an incompletely open position, FIG. 3 shows the box in the open position.

Description of the Preferred Embodiment

The box for a glass container comprises the body 1 consisting of two parts 2. Inside the body 1 the base 3 is arranged for installing at least one glass container 4. Each part 2 of the body 1 is connected to the base 3 by the pivots 5 ensuring the possibility of raising the base 3 when the parts 2 of the body are opened in the opposite directions. Each pivot 5 is located, away from the external border of the corresponding part 2 of the body, at a distance L_i which is selected according to a condition excluding the return of the body parts to the initial position by the weight of the bottom and the weight of the glass container at a preset opening angle of the body parts. The distance L_i for each pivot may be the same. In such a case the base is moving up in parallel to the supporting surface 9. If the distance from the external border of the corresponding part to the respective pivot is different, then the base 3, when the parts 2 are opened, will be raised at an angle to the supporting surface 9. The preset opening angle of the body parts 2 is selected on the condition that the center 6 of mass of each body part 2 passes through the corresponding vertical plane 7 going through points 8 of contact between the body part 2 and the supporting surface 9 when the body parts 2 are opened. The body parts 2 are provided with a limiter 10 of the opening angle of the body parts. The limiter of the opening angle of the body parts may be made in the form of a flexible link (thread, ribbon, etc.) or by any known method, e.g., in the form of two levers pivotally connected between them and to the corresponding body parts. Inside at least one part 2 a means 11 may be arranged for installing an additional container 12.

The shape of the body 1 and, respectively, the parts 2 of the body may be of any form - a parallelepiped, a pyramid with a shaped profile, etc. The contour of the perimeter, along which the

parts 2 of the body contact each other, also may have various forms, the exact one being determined by the form of the parts 2 of the body.

Before installing an article, in particular a shaped bottle, inside the body 1, the package should be opened. For this the parts 2 of the body 1 are turned relative to the axes of the pivots 5 in the opposite directions. The parts 2 of the body 1 are turned at a preset opening angle determined by the length of the limiter 10. Naturally, the minimum preset angle of opening the parts 2 of the body should ensure free passage of the container 4 into the body and its subsequent free removal. After installing a glass container 4 on the base 3 and an additional glass container 12 into the means 11, the parts 2 of the body should be returned to the initial position. While this is done, the parts 2 of the body are closely pressed to each other owing to the weight of the glass container 4 and the weight of the base 3. In the course of opening the box the parts 2 of the body are again turned relative to the axes of the pivots 5 in the opposite directions. If the opening angle of the parts 2 is less than the preset opening angle (FIG. 2) and the center of mass of each part 2 of the body has not crossed the vertical plane 7, the parts 2 will return to the initial position where they are closed. When the opening angle is increased, the center of mass of each part 2 of the body crosses the vertical plane 7 and, owing to their masses, the parts 2 of the body tend to continue opening in the direction of the supporting surface 9. Due to making the pivotal connection of the parts 2 of the body 1 with the base 3, the latter in the course of an angular motion of the parts 2 of the body makes a vertical movement thus raising the glass container 4 to a definite height, which may be determined by elementary calculations. In such a position a glass container is demonstrated in the best possible way, as if it were installed on a pedestal. Through simple calculations, which take into account the masses of the body parts 2, the glass container 4 and the additional container 12, a preset angle of opening the body parts 2 may be defined at which the moment of rotation conditioned by the mass of the parts 2 and the mass of the container 12 will be greater than that conditioned by the mass of the base 3 and the mass of the container 4. It is obvious that the greater is a preset angle of opening of the body parts, the greater is the value of the moment of rotation caused by the masses of the body parts.

Industrial Applicability

A box made in accordance with this invention complies with the requirements of technical aesthetics as well as with the conditions of storage and transportation. The application of this invention enables to improve user's comfort due to the possibility of multiple using the package in the process relative to prolonged use of the contents of the glass container. The box according to this invention may be made industrially with the use of existing and known equipment, technologies and materials.